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# SCIENCE.

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FRIDAY, DECEMBER 25, 1885.

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## COMMENT AND CRITICISM.

ALL AMERICANS have been amused with the stories which have recently appeared in the newspapers, of the intense state of excitement to which the English people have allowed themselves to be roused by the elections just closed. There is, of course, good reason for the difference in American and English election manners in the prolongation of the agony which the protraction of the English elections entails. In the *Lancet* for Dec. 12 appeared an article on 'Deaths from election fever.' The writer takes the ground that the feebleness of a community are those which take the most interest in politics. "This being so, it ought to surprise no one that a large sprinkling of the 'minds' subjected to the strain and excitement attendant on a general election should give way, or that in a certain proportion of instances brains should be so affected as to suffer those coarser injuries which end in speedy death rather than protracted mental disease." Is this to be accepted as a fair statement of the facts in England, and do we experience in the United States an increase in the number of deaths from brain-diseases at times of great political excitement?

WHILE THERE IS MUCH to rejoice at in the recent circular issued by A. C. Armstrong & company, concerning the *New Princeton review*, yet there is one paragraph that cannot but have a disappointing effect when read by those whose interest in philosophy is purely scientific, and not dogmatic or polemical. It is clearly implied that no philosophical articles, however meritorious, will be admitted into the *Review* unless they are in accord with the system of realistic philosophy, on which the venerable president of the college of New Jersey lays so much stress. From the point of view of science, this is an unfortunate determination. We have in the English language only one really scientific philosophical journal, and that is published in London. The *Journal of speculative philosophy* is excellent in its way, but it is not in the accepted sense of the word 'scientific.' Many of our other periodicals admit philo-

sophical articles, but they are lost sight of amid the surrounding mass of theology, literature, and art. The *New Princeton review* had been eagerly looked forward to as supplying a want, as far as its philosophical department was concerned. Now its preliminary announcement disappoints this expectation. We repeat, that, from a scientific stand-point, it is unfortunate that this new magazine is to be a dogmatic philosopher and an organ, rather than scientific and critical.

MOST OF THE INTERIOR of New South Wales, which is occupied by the watershed of the Darling River, the main line of drainage of the Australian continent, is a great alluvial plain, with little slope in any direction, and no well-defined water-courses in a considerable portion. The fall of the Darling through much of its length is but a few inches to the mile. The soil is of salt or bitter lake formation. The industry to which a large portion of this territory is likely to be devoted is sheep-raising, provided a sufficient supply of water can be obtained without requiring the sheep to travel too long a distance. As droughts occur extending over periods of from one to three years, the solution of the problem of water-supply is vital to the settlement of the country. Since the soil is light and unstable, permanent dams cannot be constructed in the rivers without great cost, and the declivity is too slight to permit of water being conveyed by artificial channels or canals to any distance from the streams. It has been found by artesian borings that some of the beds of loose sand interstratified with the clays yield a large supply of fresh water; but the limited amount of research that has yet been made is not sufficient to assure the squatters that water can thus surely be found, and the search for water by that means is too costly and uncertain a process for the settlers. The construction of storage-tanks, to be supplied by surface drainage, has therefore been suggested. Under the arduous conditions imposed by the probability of long droughts, these earthen tanks should be made much larger than has been the practice heretofore. The smallest reservoir, to supply some eleven thousand sheep, pastured on an area of six miles square, would require the excavation of

10,000 cubic yards, at a cost of \$4,000, and would hold 6,750,000 gallons of water. An evaporation of five feet in depth per annum, removing 2,800,000 gallons, would leave 3,950,000 gallons for the use of the sheep, — enough for one year, and perhaps eighteen months. To carry the sheep through a possible drought of three years, a tank of twice the capacity would be required.

IN A RECENT NUMBER of the *London Times* appears more evidence of the interest of England in the conquest of Burmah, that a good trade-route with western China may be opened. After referring to the misguided ways of King Thebaw, who is held up as a weak individual, guided by a few ill-advised ministers of state, the *Times* refers to the future of the country in these words: "Whatever may have been the influences round King Thebaw, they cannot much affect the future of his kingdom. Mr. Bernard, the chief commissioner, will, it is stated, proceed at once to Mandalay, with a party of officials acquainted with the Burmese language. For the present, General Prendergast will administer the country. But when Mr. Bernard arrives, civil authorities will take charge of it, and rule it in the name of the empress of India. The question seems to have been carefully studied, and there seems to be no difficulty in framing a temporary organization for governing Upper Burmah. Our efficient Indian civil service is not to be embarrassed by the acquisition of a new province."

#### RAILWAYS IN BURMAH.

MR. HOLT S. HALLETT recently addressed the members of the Scottish geographical society, his subject being 'A survey for railway connections between India, Siam, and China.' The conquest by England of Upper Burmah places the Burmese Shan states under her protection, and thus allows their peaceful and trade-loving inhabitants to expect a better commercial connection with that country. England is now placed in such a position that no political hindrance remains to prevent her driving the iron horse up to the gates of China, and opening up to trade the western provinces of that rich and prosperous empire. For the past four years Mr. Colquhoun and Mr. Hallett have deeply interested themselves in the subject of the expansion of trade by linking China and the intervening countries to India by means of railways. The valley of the Irrawaddy is bounded on the west by a range of hills which, as it proceeds southwards, spreads out into an entangled mass,

touching the sea along the Bay of Bengal with many of its spurs. No railway can therefore be constructed, except at a prohibitive cost, from Calcutta along the seaboard towards Rangoon. Through the pass used by the Burmese in their invasion of Assam, there is a route which would suit admirably for carrying a railway from the Brahmapootra valley into the valley of the Irrawaddy, and then the railway could be joined, without meeting any great difficulties, to the Rangoon and Tonghoo line, having its present terminus at Rangoon. The height of the pass is not more than 2,500 feet above the sea-level, or 2,000 feet above the level of the Brahmapootra valley.

Owing to the many ranges that would have to be crossed, a railway constructed to connect any part of the Irrawaddy valley in Upper Burmah, or Lower Burmah to the north of Beeling, with western China, would be of greater length and considerably more costly than a line (proposed by Mr. Hallett) which has its terminus at Maulmain.

In considering the traffic which would be likely to arise from the construction of railways through the centre of Indo-China, Mr. Hallett said: "It will be well to remember, 1°, that although the population of our possessions in British Burmah is only 1-40th of that of our Indian dominions, yet British Burmah has 1-10th of the whole trade of India; 2°, that Upper Burmah, which since the rebellion of the Burmese Shan states has scarcely a million of inhabitants, still carries on a trade with us of about £3,000,000 sterling; 3°, that a million sterling of treasure is imported into Burmah each year more than is exported; 4°, that Chinese emigration has been shut out lately from America, Australia, and other places, and would certainly set into the fertile plains of Indo-China if it were encouraged and facilitated by the construction of railways; 5°, that already half the population in the delta of the Meh Nam is composed of Chinese and their descendants; 6°, that the great want of British Burmah is population."

The paying prospects of the proposed railways can be compared with those of the railway between Rangoon and Prome, which was opened in 1878. This railway, which is 162 miles in length, was made to connect the town of Prome with the seaport of Rangoon. It passes for fully two-thirds of its length through an unfertile country covered with scrub jungle. On the whole length of the railway there are not more than six villages, and the line is in competition with the admirable flotilla of steamers plying on the Irrawaddy River. Yet this line paid to the English government a net profit of 6 per cent last year upon the expenses of its construction.